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ZINC IN NOVEMBER 1999

Domestic mine production in November, expressed in zinc content of concentrate, was nearly 9% lower than in October, but the same as in November 1998. Actual mine production for November 1999 was not available at the time of publication. Smelter production was nearly 5% higher than the previous month's production and more than 7% higher than a year ago. Apparent consumption increased by more than 5% and was less than 1% higher than in November 1998.

The *Platt's Metals Week* composite price for North American Special High Grade zinc declined slightly in November, but it still was more than 15% higher than a year ago.

Zinc premiums in the United States at the end of 1999 remained firm at around 4.25 cents and 4.50 cents per pound of zinc metal. In Europe, the zinc market remained buoyant with traders anticipating higher premiums in the coming year. Rotterdam premiums at yearend were around $20-$25 per metric ton over the London Metal Exchange (LME) cash price (Metal Bulletin, 1999b). The 3-month LME cash price rose by nearly 4% partly due to the short-lived declaration of *force majeure* by Metaleurop after a strike at its Noyelles-Godault lead-zinc smelter in France (Mining Journal, 1999d).

Zinc metal prices may increase even further, not because of increased demand, but rather because of the increase in treatment charges. Smelters are predicting as much as a $20-per-ton price increase over the 1999 benchmark of $169 per ton for treating one ton of zinc concentrate, based on the $1,000 LME price for zinc metal. Miners are said to be looking for a benchmark of about $175 per ton, at a same basis of $1,000 (American Metal Market, 1999b). Recent developments—increased production of concentrates and unchanged smelter capacity—seem to favor the smelters. The recent start-up of mines such as Lisheen in Ireland and Century and Cannington in Australia, plus the expansion of Red Dog in Alaska have all contributed to increased production of concentrates. It is unlikely that the treatment charge will be decided before the American Zinc Association meeting at the end of January. By that time, activity in the spot market may increase and give both sides a better indication of what the treatment charge should be.

According to a recent press release, Horsehead Industries Inc. believes that the U.S. Government should be responsible for the cleanup of the company's Palmerton, PA, Superfund site. In December, the U.S. Environmental Protection Agency (EPA) ordered the company and the original site owners—Viacom International Inc. and TCI Pacific Communications Inc.—to continue efforts to clean up zinc, lead, arsenic, and cadmium pollution at the site as well as continue abiding to a 1998 agreement to revegetate the property. Horsehead Industries, however, claims that during both World Wars, the smelter was under government control, through the War Production Board. Production at the zinc smelting facility was highest during World War II, and the entire output of the facility was for wartime activities. In addition, Horsehead Industries argued that in the 16 years since the site was placed on the Superfund list, numerous government studies had concluded that there is no human health risk from contamination. Regardless of Horsehead beliefs, EPA has already reached a $4.7-million settlement with 197 companies that supplied metal-containing dust for processing by Horsehead Industries at its Palmerton facility (American Metal Market, 1999a).

Atna Resources Ltd. and Grayd Resources Corp. has reported the results of the 3,130-meter, 14-hole diamond drill program on the Dry Creek volcanogenic massive sulfide project, located in the Bonnifield district of Alaska, about 100 kilometers south of Fairbanks. All holes intersected disseminated sulfide mineralization with zinc content ranging from 1.4% to 15.1%. Despite the positive result from drilling, the result did not meet its required objectives. Atna has terminated its option to earn interest in the Dry Creek and Anderson Mountain properties and has relinquished its right of first offer in accordance with the Property and Financing Agreement, dated July 29, 1997, between Grayd and Atna (Mining Record, 1999).

The Lisheen Mine in Ireland shipped its first delivery of concentrate from the Port of Cork, 3 months after commencement of operations. The shipment left Cork on December 12, bound for

Antwerp. Anglo American Corp.'s subsidiary, Anglo Base Metals Ltd., operates the mine in joint venture with Ivernia West plc. The mine is expected to reach full production of 330,000 tons of zinc concentrate and 40,000 tons of lead concentrate by the third quarter of 2000. Sale contracts for more than 70% of the output are already signed. The deposit, which has an estimated life of about 14 years, was discovered by Ivernia in 1990 and construction began in October 1997 (Mining Journal, 1999c).

With the final drilling at the Feitais deposit, EuroZinc Mining Corp. has moved another step closer to completing the final feasibility study for the Aljustrel polymetallic project in Portugal. The latest drilling intersected wide zones of sulfide mineralization containing between 6.15% and 7.40% zinc. The Aljustrel Mine, consists of five deposits of which only the adjoining Feitais and Moinho deposits had been surveyed. The mine is located in the Iberian Pyrite belt of southern Portugal. By advancing the Aljustrel project to the production stage, EuroZinc will earn a 75% interest from a Portugese state-owned mining company. Based on completed drilling results, the estimated resources amount to 17.6 million tons grading 5.81% zinc, 2.06% lead, and 0.3% copper (Mining Journal, 1999b). A new resource estimate is expected to be calculated when the drilling data are completed, and a final feasibility study will be finished in 2000.

The first shipment of zinc concentrate from Pasminco Ltd.'s Century zinc mine in Australia departed the Gulf of Carpentaria on December 21, bound for the Budel smelter in the Netherlands. The company said that the 10,000-ton cargo was loaded to the transatlantic ship from the company's transfer vessel, Wunma, 21 kilometers offshore from Pasminco's Karumba port facility. Regular monthly shipments of zinc concentrate are expected to begin before the end of January 2000 and will build up to around 40,000 tons per month by the end of 2001 (Platt's Metals Week, 1999). Pasminco has pre-sold 90% of its anticipated production to smelters on a multi-year basis. In addition to the Budel smelter, which will take about 50% of production, concentrate will be also shipped to Pasminco's smelters at Risdom, Tasmania, and Clarksville in Tennessee, and to Korea Zinc Co. Ltd.'s new smelter at Townsville in Queensland (Mining Journal, 1999a).

Billiton plc of United Kingdom has reached an exclusive agreement with China's Yunnan Lanping Nonferrous Metals Co. Ltd. to develop the Lanping zinc project in western Yunnan province. Under the terms of the agreement, a successful feasibility study would be followed by forming a joint venture that would build an integrated zinc-mining complex. In this joint venture, Billiton would hold majority ownership and operating rights. The deposit has the potential to be one of the largest lead-zinc mines in Asia, with annual production potentially reaching 200,000 tons of refined zinc and 20,000 tons of lead at a capital cost of $500 million (Metal Bulletin, 1999a).

Burkina Faso may soon join the zinc-producing countries of the world. Metorex Pty of South Africa has acquired Billiton Burkina Faso (BBF), a subsidiary of Billiton plc. BBF was formed to develop the Perkoa zinc deposit, which was discovered in 1982 by the United Nations Development Programme. Extensive drilling indicated a resource totaling 7 million tons grading 17.6% zinc at a 10% zinc cut-off. Zinc mineralization occurs in two steeply dipping lenses that have been delineated to a depth of 500 meters and to widths exceeding 12 meters. The average grade in the lower lens, which contains most of the zinc resources, is 19%. The prefeasibility study confirmed the potential of the project, but still did not meet Billiton's investment criteria, principally in respect to potential mine life and metal production levels. However, the size and the nature of the project is ideally suited to the Metorex portfolio. When the study confirms the feasibility of the project, Metorex will make investments in infrastructure and equipment (Northern Miner, 1999).

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Mining Record, 1999, Atna terminates option on the Dry Creek property: Mining Record, v. 110, no. 44, November 3, p. 3.

Northern Miner, 1999, Crew gains Perkoa zinc deposit: Northern Miner, v. 85, no. 43, December 20, p. 17, 19.

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TABLE 1
SALIENT ZINC STATISTICS 1/

(Metric tons)

	1998	1999			
	January-December	September	October	November	January-November
Production:					
Mine, zinc content of concentrate	755,000	64,200	71,600 r/	65,500	742,000
Mine, recoverable zinc	722,000	60,800	67,800 r/	62,000	703,000
Smelter, refined zinc	380,000	27,200	30,000	31,400	329,000
Oxide (gross weight)	153,000	8,680	8,660	9,320	113,000
Consumption:					
Refined zinc, reported	647,000	42,000	42,900 r/	41,000	465,000
Ores e/ (zinc content)	1,020	85	85	85	935
Zinc-base scrap e/ (zinc content)	225,000	18,800	18,800	18,800	206,000
Copper-base scrap e/ (zinc content)	200,000	16,700	16,700	16,700	183,000
Aluminum- and magnesium-base scrap e/ (zinc content)	1,240	103	103	103	1,130
Total e/	1,070,000	77,600	78,600 r/	76,600	856,000
Apparent consumption, metal 2/	1,290,000	173,000	126,000 r/	129,000 3/	1,340,000
Stocks of refined (slab) zinc, end of period:					
Producer 4/	9,060	9,380	9,380	9,380	XX
Consumer 5/	69,900	63,300	62,300 r/	61,900	XX
Merchant	13,300	9,350	9,370	9,710	XX
Total	92,300	82,000	81,000 r/	81,000	XX
Shipments of zinc metal from Government stockpile	26,000	2,310	--	2,320	19,800
Imports for consumption:					
Refined (slab) zinc	879,000	144,000	95,500	NA	900,000 6/
Oxide (gross weight)	58,900	4,830	5,290	NA	53,200 6/
Ore and concentrate (zinc content)	46,300	3,420	8,830	NA	55,500 6/
Exports:					
Refined (slab) zinc	2,330	365	213	NA	1,290 6/
Oxide (gross weight)	6,210	1,140	419	NA	6,420 6/
Ore and concentrate (zinc content)	552,000	63,100	67,100	NA	485,000 6/
Waste and scrap (gross weight)	35,000	1,910	1,770	NA	22,700 6/
Price:					
London Metal Exchange, average, dollars per metric ton	1,024.11	1,193.34	1,148.36	1,146.77	1,066.20
Platt's Metals Week North American Special High Grade, average, cents per pound	51.43	58.65	56.61	56.53	53.08

r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Smelter production plus imports minus exports plus shipments from Government stockpile plus stock change.

3/ Data based on reported consumption, stocks and estimated trade data.

4/ Data from U.S. Geological Survey and American Bureau of Metal Statistics.

5/ Includes an estimate for companies that report annually.

6/ Includes data through October only.

TABLE 2
REFINED ZINC PRODUCED IN THE UNITED STATES 1/

(Metric tons)

Month	Beginning stocks 2/	Production	Shipments	Ending stocks 2/
1998:				
November	9,930	29,200	29,900	9,240
December	9,240	32,000	32,200	9,060
Year total	XX	380,000	381,000	XX
1999:				
January	9,060	30,200	29,700	9,590
February	9,590	27,700	28,900	8,360
March	8,360	31,900	30,100	10,200
April	10,200	30,100	30,900	9,380
May	9,380	30,100	30,100	9,380
June	9,380	30,100	30,100	9,380
July	9,380	30,100	30,100	9,380
August	9,380	30,000	30,000	9,380
September	9,380	27,200	27,200	9,380
October	9,380	30,000	30,000	9,380
November	9,380	31,400	31,400	9,380
January-November	XX	329,000	329,000	XX

XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Includes stocks held at locations other than smelters.

Sources: U.S. Geological Survey and American Bureau of Metal Statistics.

TABLE 3
ZINC OXIDE PRODUCED IN THE UNITED STATES 1/ 2/

(Metric tons, gross weight)

Month	Beginning stocks	Production	Shipments	Ending stocks
1998:				
November	3,940	13,300	12,700	4,530
December	4,530	12,900	12,400	5,060
Year total	XX	153,000	153,000	XX
1999:				
January	5,060	12,600	12,900	4,810
February	4,810	12,400	12,900	4,270
March	4,270	11,800	11,800	4,270
April	4,270	11,800	12,400	3,680
May	3,680	11,900	11,900	3,640
June	3,640	8,680	9,010	3,310
July	3,310	8,700	8,700	3,310
August	3,310	8,680	8,680	3,310
September	3,310	8,680	8,680	3,310
October	3,310	8,660	8,660	3,310
November	3,310	9,320	9,080	3,540
January-November	XX	113,000	115,000	XX

XX Not applicable.
1/ Excludes impure zinc oxide produced from other processes.
2/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 4
ESTIMATED DISTRIBUTION OF ZINC OXIDE
SHIPMENTS BY INDUSTRY 1/ 2/ 3/

(Metric tons, gross weight)

Industry	1998 January-December	1999 September	October	November	January-November
Agriculture	2,540	142	124	128	1,540
Ceramics	7,590	554	554	567	6,510
Chemicals	W	2,190	2,190	2,310	26,300
Paints	6,960	294	294	302	4,660
Photocopying	W	256	256	273	2,850
Rubber	101,000	5,110	5,110	5,370	71,400
Other	35,000	128	129	136	1,420
Total	153,000	8,680	8,660	9,080	115,000

W Withheld to avoid disclosing company proprietary data; included with "Other."
1/ Distribution of U.S. producers only. Imports excluded because distribution by industry cannot be distinguished.
2/ May include in-house consumption.
3/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 5
APPARENT CONSUMPTION OF REFINED ZINC
ACCORDING TO INDUSTRY USE AND PRODUCT 1/

(Metric tons)

Industry and product	1998 January-December	1999 September	October r/	November 2/	January-November
Galvanizing:					
Sheet and strip	528,000	68,300	49,900	51,900	539,000
Other	177,000	29,800	19,800	20,600	208,000
Total	706,000	98,100	69,700	72,500	747,000
Brass and bronze	178,000	25,800	17,700	18,600	194,000
Zinc-base alloy	246,000	32,400	24,500	22,700	247,000
Other uses 3/	161,000	16,700	14,500	15,200	154,000
Grand total	1,290,000	173,000	126,000	129,000	1,340,000

r/ Revised.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Data based on reported consumption, stocks and estimated trade data.
3/ Includes zinc used in making zinc dust, desilvering lead, powder, alloys, anodes, chemicals, castings, light metal alloys, rolled zinc, and miscellaneous uses not elsewhere specified.

TABLE 6
AVERAGE MONTHLY ZINC PRICES 1/

Month	North American ¢/lb.	LME cash ¢/lb.	LME cash $/mt.
1998:			
November	48.99	43.85	966.83
December	48.47	43.49	958.82
January-December	51.43	46.45	1,024.11
1999:			
January	47.06	42.29	932.34
February	50.90	46.13	1,016.90
March	51.27	46.70	1,029.61
April	50.66	46.20	1,018.60
May	52.09	47.19	1,040.33
June	50.13	45.36	1,000.11
July	53.72	48.61	1,071.69
August	56.26	51.26	1,130.16
September	58.65	54.13	1,193.34
October	56.61	52.09	1,148.36
November	56.53	52.02	1,146.77
January-November	53.08	48.36	1,066.20

1/ Special High Grade.

Source: Platt's Metals Week.

TABLE 7
U.S. EXPORTS OF ZINC 1/

Material	1998 Quantity (metric tons)	1998 Value (thousands)	1999 2/ October Quantity (metric tons)	1999 2/ October Value (thousands)	1999 2/ Year to date Quantity (metric tons)	1999 2/ Year to date Value (thousands)
Refined (slab) zinc	2,330	$2,750	213	$197	1,290	$1,490
Ore and concentrate (zinc content)	552,000	248,000	67,100	48,000	485,000	253,000
Waste and scrap (gross weight)	35,000	27,500	1,770	1,440	22,700	19,800
Powders, flakes, and dust (zinc content)	5,530	10,500	493	732	4,240	8,380
Oxide (gross weight)	6,210	11,300	419	587	6,420	10,400
Chloride (gross weight)	1,940	1,290	479	239	2,370	1,720
Sulfate (gross weight)	4,380	2,780	413	273	4,140	2,540
Compounds, other (gross weight)	305	1,170	218	782	701	2,320

1/ Data are rounded to three significant digits.
2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ZINC 1/

Material	1998 Quantity (metric tons)	1998 Value (thousands)	1999 2/ October Quantity (metric tons)	1999 2/ October Value (thousands)	1999 2/ Year to date Quantity (metric tons)	1999 2/ Year to date Value (thousands)
Refined (slab) zinc	879,000	$956,000	95,500	$86,200	900,000	$867,000
Ore and concentrate (zinc content)	46,300	23,700	8,830	4,160	55,500	30,700
Waste and scrap (gross weight)	29,200	15,700	1,830	992	20,900	10,300
Powders, flakes, and dust (zinc content)	17,600	34,000	1,880	3,590	18,100	32,100
Oxide (gross weight)	58,900	60,100	5,290	5,690	53,200	53,900
Chloride (gross weight)	1,570	1,520	119	127	1,430	1,320
Sulfate (gross weight)	10,400	5,940	601	375	8,690	5,370
Compounds, other (gross weight)	1,260	1,730	92	118	1,120	1,150

1/ Data are rounded to three significant digits.
2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.

TABLE 9
SHIPMENTS OF ZINC METAL FROM THE NATIONAL DEFENSE STOCKPILE 1/

(Metric tons)

Month	Beginning inventory	Shipments	Ending inventory
1998:			
November	205,000	1,200	204,000
December	204,000	5,100	199,000
Year total	XX	26,000	XX
1999:			
January	199,000	2,150	197,000
February	197,000	2,750	194,000
March	194,000	2,800	191,000
April	191,000	1,640	190,000
May	190,000	736	189,000
June	189,000	800	188,000
July	188,000	1,450	187,000
August	187,000	2,830	184,000
September	184,000	2,310	181,000
October	181,000	--	181,000
November	181,000	2,320	179,000
January-November	XX	19,800	XX

XX Not applicable.
1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Defense Logistics Agency.

TABLE 10
U.S. IMPORTS OF ZINC, BY TYPE OF MATERIAL AND COUNTRY 1/

(Metric tons)

Material and country	General imports			Imports for consumption		
		1999 2/			1999 2/	
	1998	October	Year to date	1998	October	Year to date
Ore and concentrate (zinc content):						
Mexico	17,100	1,030	10,300	17,100	832	9,990
Peru	26,900	8,840	31,900	26,100	8,000	30,100
Other	3,270	--	15,500	3,130	--	15,400
Total	47,300	9,870	57,700	46,300	8,830	55,500
Blocks, pigs, or slab:						
Canada	504,000	46,900	445,000	505,000	46,900	445,000
China	52,800	1,680	38,900	52,800	2,080	39,400
Finland	4,580	1,800	13,300	4,580	1,800	13,300
Kazakhstan	27,000	28,000	124,000	27,000	28,000	124,000
Korea, Republic of	42,600	3,140	44,700	51,900	3,140	44,700
Mexico	78,000	5,640	83,600	78,000	5,640	83,600
Peru	47,800	5,320	59,400	47,800	5,320	59,400
Poland	16,100	--	12,300	16,100	--	12,300
Russia	16,400	499	13,900	16,400	499	13,900
South Africa, Republic of	3,340	1,510	6,570	3,340	1,510	6,570
Spain	25,700	--	5,700	25,700	--	5,700
Other	47,800 r/	628	44,400	50,300 r/	628	51,900
Total	866,000	95,100	892,000	879,000	95,500	900,000
Dross, ashes, & fume (content)	21,100	1,390	16,900	21,100	1,390	16,900
Grand total	934,000	106,000	967,000	946,000	106,000	972,000
Oxide (gross weight):						
Canada	33,000	3,040	29,500	33,000	3,040	29,500
China	1,890	56	1,410	1,890	56	1,410
Germany	313	113	966	313	139	966
Mexico	18,900	1,550	16,900	18,900	1,550	16,900
Netherlands	2,290	146	2,270	2,290	146	2,270
United Kingdom	497	179	536	482	179	536
Other	2,080 r/	173	1,690	2,080 r/	172	1,690
Total	58,900	5,260	53,200	58,900	5,290	53,200
Other (gross weight):						
Waste and scrap	29,200	1,830	20,900	29,200	1,830	20,900
Sheets	16,200	3,740	18,700	16,900	3,740	18,700
Powders, flakes, and dust (zinc content)	17,600	1,880	18,100	17,600	1,880	18,100

r/ Revised.
1/ Data are rounded to three significant digits; may not add to totals shown.
2/ Data for the current month were not available at time of publication.

Source: Bureau of the Census.